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--137. The stabilized acidic liquid system of claim 136, wherein the weight ratio of the calcium ions to the enzymatically blocked-deesterified pectin is from about 0.001 to about 10.

REMARKS

Reconsideration and withdrawal of the rejections of record are respectfully requested.

Summary of Status of Amendments

The paragraph on page 9, between lines 9-14 has been amended to replace the term "essential" with "essentially" to correct a grammatical error.

In addition, the paragraph on page 18, line 26 to page 19, has been amended. Specifically, at page 19, line 9, the term "Hcl" has been changed to "Hcl"; at page 19, line 4, "(1)" has been changed to "(9)"; and at page 19, line 7, "(1)" has been changed to "(10)" to correct typographical errors.

Further, the paragraph on page 20, between lines 18-23 has been amended to replace the term "HCI" with "HCl" to correct a typographical error.

In the present amendment, claims 1, 3, 9, 11, 12, 16, 24, 25, 27, 40, 45-48, 50, 56, 83, 86, 88, 90, 118, and 121 have been amended. In addition, claims 122-129 have been added. Therefore, claims 1-129 are pending in the application with claims 1, 25, 48, and 88 being independent.

Applicants respectfully point out that claims 1, 25, 48, and 88 have been amended to further define the enzymatically blocked-deesterified pectin as having (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and to define that the amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%. Support for this can be found throughout the

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specification, specifically at page 9, line 28 to page 10, line 6, page 11, lines 10-14, and page 14, lines 24-27. No new matter has been added.

Claims 11, 12, 45, 46, 56, 83, and 118 have been amended to delete the phrase "a calcium sensitivity greater than about 200 cP or a calcium faction greater than 20, and" because this phrase has been added to amended independent claims 1, 25, 48, and 88 (of which claims 11, 12, 45, 46, 56, 83, and 118 are dependent on). No new matter has been added.

Claims 3, 27, 50, and 90 have been amended to correct a typographical error. Specifically, the second term "manganese" in these claims has been changed to "magnesium." Support for this can be found throughout the specification, specifically at page 9, lines 19-21. No new matter has been added.

Claims 16, 24, and 40 have been amended to change the degree of esterification from "about 45 to 65%" to "about 45 to 62%." Support for this can be found throughout the specification, specifically at page 11, lines 11-13. No new matter has been added.

Claims 9 and 47 have been amended to change the degree of esterification from "about 45 to 65%" to "about 50 to 62%." Support for this can be found throughout the specification, specifically at page 11, lines 11-13. No new matter has been added.

Claims 86 and 121 have been amended to change the degree of esterification from "45 to 65% when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%" to "about 50 to 62%." Support for this can be found throughout the specification, specifically at page 11, lines 11-13. No new matter has been added.

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Claim 87 has been amended to delete the phrase "when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%." Support for this can be found throughout the specification, specifically at page 11, lines 11-13. No new matter has been added.

Claims 122-137 have been added to further define the claimed invention. Specifically, claims 122, 123, 126, 127, 130, 131, 134, and 135 have been added to define the amount of the enzymatically blocked-deesterified pectin in the aqueous solution. Claims 124, 128, 132, and 136 have been added to define that calcium ions react with the enzymatically blocked-deesterified pectin to form a gel network of stable viscosity. Claims 125, 129, 131, and 137 have been added to define that the weight ratio of the calcium ions to the enzymatically blocked-deesterified pectin is from about 0.001 to about 10. Support for this can be found throughout the specification, specifically at page 15, lines 2-3 and lines 26-28.

In view of the above, the present amendment as well as the added claims should be entered because it does not raise any new issues and no further searching should be required. Further, the present amendment as well as the added claims should be entered because it puts the application in condition for allowance for the reasons discussed in more detail below. Still further, the present amendment as well as the added claims should be entered because it puts the present application in better condition for appeal.

Summary of Status of Office Action

In the Office Action, claims 1-121 are rejected. At page 2 of the Office Action, the Examiner alleges that Claims 1-4, and 48 are rejected under 35 U.S.C. § 112, second paragraph, for being indefinite.

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In addition, two prior art rejections are made in the Office Action. At page 3 of the Office Action, Claims 1-8, 18-48 are rejected over prior art references. However, it is not clear whether these claims are rejected under 35 U.S.C. § 102 or § 103. This rejection is confusing because it asserts an inherency rejection as well as an obviousness rejection. At page 3, the Office Action states that the claimed characteristics are inherently found in the composition. At the same time, the Office Action states that it would have been **obvious** to make the claimed pectin as shown by the **combination** of the cited prior art references. The Office Action also does not identify how the cited documents are being combined. In addition, the Office Action does not explain why it would have been obvious for a skilled artisan to modify the teaching of the prior art to make the claimed invention. In view of the above, Applicants respectfully request that the Examiner clarify this rejection in the next Office Action and not make it final.

At page 7, the Office Action also stated that "Claims 9-12, 83 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the above combined references as applied to claims 1-8, 13-82, 84-121 above, and further in view of GRASSIN et al. '494." Again, the Office Action also does not identify how the cited documents are being combined. In addition, the Office Action does not explain why it would have been obvious for a skilled artisan to modify the teaching of the prior art to make the claimed invention. Therefore, Applicants respectfully request that the Examiner clarify this rejection in the next Office Action and not make it final.

Form PTO-892

Applicants respectfully point out that Form PTO-892 (Notice of References Cited) attached to the Office Action identifies the AKAHOSHI et al. reference as US-5,590,975. However, the

AKAHOSHI et at reference enclosed in the Office Action is U.S. Patent No. 5,690,975. Applicants respectfully request that the Examiner correct this typographical error.

Claimed Invention

As discussed above, all the independent claims (claims 1, 25, 48, and 88) have been amended. These amended independent claims are directed to an enzymatically blocked-deesterified pectin that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation. This enzymatically blocked-deesterified pectin has (1) a degree of esterification (DE) from about 45 to 62%, and (2) a calcium sensitivity (CS) greater than about 200 cP or a calcium fraction greater than 20. The amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%. Since all remaining pending claims depend from these independent claims, they also contain the limitation of these claims.

Independent claim 1, as amended, is directed to the enzymatically blocked-deesterified pectin discussed above. Independent claim 25, as amended, is directed to a process for producing the enzymatically blocked-deesterified pectin. The process comprises treating at least one isolated high methoxyl pectin with at least one deesterifying enzyme. Independent claim 48, as amended, is directed to a process for suspending insoluble components in an acidic liquid system. This process comprises adding the enzymatically blocked-deesterified pectin to the acidic liquid system. Finally, independent claim 88, as amended, is directed to a stabilized acidic liquid system. The stabilized acidic system comprises (a) at least one of the enzymatically blocked-deesterified pectin; and (b) at least one acidic liquid solution. Dependent claims 2-24, 122, and 123 depend on independent claim

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1. Dependent claims 26-47, 124, and 125 depend on independent claim 25. Dependent claims 49-87, 126, and 127 depend on independent claim 48. Dependent claims 89-121, 128, and 129 depend on independent claim 88.

Response to § 112 Rejection

Claims 1-4 and 48 are rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. The Office Action alleges that claim 1 is indefinite because "it requires particular characteristics, but does not state how much pectin would have been required to make a solution with the claimed characteristics." Applicants respectfully point out that claim 1 has been amended to recite that the amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%, and that the pectin has (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20. Therefore, this rejection is now obviated.

Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

Claim 3 is rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. The Office Action asserts that this claim is indefinite since it recites manganese ions twice. Applicants respectfully point out that claim 3, 27, 50, and 90 have been amended to replace the second term "manganese" with "magnesium" to correct a typographical error. Therefore, this rejection is obviated. As discussed above, support for this amendment can be found throughout the specification, specifically at page 9, lines 19-21. Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

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Claim 11 is rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. The Office Action alleges that the "triangle" (Δ) in front of the term degree of esterification is not defined. Applicants respectfully point out that at page 10, lines 14 to 16, the specification clearly defines ΔDE (Δ degree esterification) as the difference in the DE (degree esterification) between the pectins before enzymatic deesterification as compared to the pectin after enzymatic deesterification. Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

Claim 48 is rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. The Office Action alleges that the phrase "wherein the enzymatically blocked-deesterified pectin displays . . . " is not understood because once present in the acidic liquid system, the pectin should no longer have this characteristic. Applicants respectfully point out that although claim 48 is directed to a process for suspending insoluble components in an acidic liquid system, the phrase "wherein the enzymatically blocked-deesterified pectin displays . . . " is directed to the pectin being added to the acidic liquid system. That is, the pectin is an enzymatically blocked-deesterified pectin that has been deesterified with enzyme. This enzymatically blocked-deesterified pectin displays pseudoplasticity and substantially no phase separation when it is present in an aqueous solution comprising at least one polyvalent cation. Therefore, claim 48 clearly defines the claimed pectin, and thus is **not** indefinite. Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

First Prior Art Rejection

As discussed above, the Office Action states that "Claims 1-8, 18-48 are rejected under 35 U.S.C. § 103(e) and (b) as being unpatentable over GERRISH (6,221,419) (e) and Glahn '346 (e),

JACOBSON et al., (b) AKAHOSHI et al. (B)." There appears to be a typographical error in this rejection because § 103(e) does not exist under 35 U.S.C. However, if Applicants were to assume that there is a typographical error and §103 should be §102, this rejection also does not make sense since an unpatentable rejection is not applicable under §102. In addition, at page 3 of the Office Action, the Examiner asserts that the claimed characteristics are inherently found in the composition. At the same time, the Office Action states that it would have been obvious to make the claimed pectin as shown by the combination of the cited references.

Further, the Office Action does not identify how the cited documents are being combined. The Office Action does not explain why it would have been obvious for a skilled artisan to modify the teaching of the prior art to make the claimed invention. Since the rejection is not clearly set forth, Applicants respectfully request that the Examiner clarify this rejection in the next Office Action and not make it final.

GERRISH (U.S. Patent No. 6,221,419)

The Office Action asserts that GERRISH discloses the use of composition containing a pectin with a degree of esterification (DE) from 60-90% and a calcium sensitivity of less than 25 to stabilize acidic beverages, such as yogurt. The Office Action also states that this pectin is considered to be blocked-deesterified because it has been treated with an enzyme. Further, the Office Action asserts that polyvalent cation, e.g., calcium, is present in the milk drink.

Applicants respectfully point out GERRISH teaches a pectin for stabilizing proteins that is different from the pectin of the claimed invention. The pectin of GERRISH has (1) a degree of esterification of 60 to 95%, (ii) a calcium sensitivity of less than 25cP, and (iii) a calcium sensitive

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pectin weight ratio of calcium sensitive pectin to the sum of calcium sensitive and non-calcium sensitive pectin of 0.7 or more. In contrast, all the pending claims are directed to an enzymatically blocked-deesterified pectin having (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20.

GERRISH discloses a pectin having a calcium sensitivity that is much smaller than the pectin of the claimed invention. GERRISH does not teach or suggest the pectin of the claimed invention. GERRISH neither teaches nor suggests an enzymatically blocked-deesterified pectin having (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20. Further, nothing in GERRISH teaches or suggests an enzymatically blocked-deesterified pectin that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

GLAHN (U.S. Patent No. 6,143,346)

The Office Action alleges that GLAHN discloses "a composition containing a pectin having a DE of more than 60% in a cation containing preparation." The Office Action asserts that "[n]o patentable distinction is seen at this time in whether the pectin is enzymatically blocked or not as the DE is shown."

Applicants respectfully point out that GLAHN is directed to a pectin containing a mixture of a calcium-sensitive fraction and a non-calcium sensitive fraction which can be separated into separate fractions in a commercially feasible manner. See column 2, lines 37-41. GLAHN teaches pectins that are different from the claimed pectin. Example 1, of GLAHN illustrates a gel pectin having a DE of 66 and CS of 930, and a liquid pectin having a DE of 74 and CS of 0.3 which are

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outside the parameter of the claimed pectin. Examples 2 to 6, demonstrate pectin starting material, pectin CSP fraction, and pectin NCSP fraction having DE **and** CS that are also outside the parameter of the claimed pectin. For example, the DE and CS of the starting pectin material in Examples 2 to 6, are 71.5 and 360; 60.4 and 3.6; 68.3 and 4.9; 71.9 and 87; and 71.5 and 360 respectively. The DE and CS of the pectin CSP fraction in Examples 2 to 6, are 67.5 and 850; 54.3 and 45; 64.8 and 109; 65.6 and 1080; and 65.6 and 1600 respectively. The DE and CS of the pectin NCSP fraction in Examples 2 to 6, are 78.5 and 0.1; 67 and 0.5; 76.6 and 0; 77.3 and 0.4; and 77.1 and 0.2 respectively.

As discussed, the claimed invention is directed to an enzymatically blocked-deesterified pectin that has (1) a degree of esterification from about 45 to 62%, **and** (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20. GLAHN neither teaches nor discloses a pectin having (1) a degree of esterification from about 45 to 62%, **and** (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20 that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

JACOBSON et al. (U.S. Patent No. 5,780,081)

The Office Action alleges that JACOBSON et al. disclose a foodstuff containing a complex of calcium and enzymatically depolymerized polysaccharide. The Office Action further asserts that the pectin is "seen to be blocked as it has been treated with an enzyme."

Applicants respectfully point out that JACOBSON et al. teach a pectin that is substantially different from the claimed pectin. JACOBSON et al. is directed to a fortification of food with

calcium using a hydrolysed polysaccharide that may be derived from **hydrolysed** pectin. JACOBSON et al. do not teach or suggest an enzymatically blocked-**deesterified** pectin that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

The mechanism of the hydrolysed pectin of JACOBSON et al. occurs at the galacturonic acid chain of the pectin, whereas the mechanism of deesterified pectin of the claimed invention occurs at the carboxyl groups of the pectin. Therefore, the pectin of JACOBSON et al. has a structure that is substantially different from the pectin of the claimed invention. Specifically, pectin is a structural polysaccharide commonly found in the form of protopectin in plant cells. The backbone of pectin comprises ∝-1-4 linked galacturonic acid residues which are interrupted with a small number of 1,2 linked∝-L-rhamnose units. (See page 2, lines 9-19 of the specification of the present application.) Pectin can be degraded using enzymes via different mechanisms. For example, enzymes can be used to hydrolyse pectin, as well as to deesterify pectin. According to Rolin at page 276 (which was submitted to the U.S. Patent Office in an Information Disclosure Statement on September 13, 2000), enzymes such as galacturonases catalyze hydrolyse of glycosidic bonds in the polygalacturonic acid chain. See also page 1, line 13-31 of WO 94/25557 (which was also submitted to the U.S. Patent Office in the Information Disclosure Statement on September 13, 2000). For the Examiner's convenience copies of the Rolin reference and the WO 94/25557 publication are attached to this Amendment.

As for the deesterification of the pectin of the present invention, this technique is conducted via the use of a deesterifying enzyme such as a pectin methyl esterase. The pectin methyl esterase

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enzymes deesterify pectins by freeing the carboxylic acid groups contained in the polygalacturonic acid chain to form blocks of free carboxyl group. (See page 12, lines 8-14 of the specification of the present application.)

Because the mechanism of enzymatically hydrolysed pectin and enzymatically deesterified pectin are substantially different, the hydrolysed pectin of JACOBSON et al. has a structure that is substantially different from a deesterified pectin of the claimed invention.

Furthermore, there is nothing in JACOBSON et al. that teaches or suggests a deesterified pectin that displays pseudoplasticity and substantially no phase separation.

In view of the above, Applicants respectfully submit that JACOBSON et al. do not teach or suggest the enzymatically blocked-**deesterified** pectin of the claimed invention. JACOBSON et al. neither teach nor suggest an enzymatically blocked-deesterified pectin having (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20 that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

AKAHOSHI et al. (U.S. Patent No. 5,690,975)

The Office Action states that AKAHOSHI et al. teach a calcium enriched fermented milk containing blockwise-type HM pectin. Since the pectin of AKAHOSHI et al. is blocked, the Examiner asserts that it must be treated with enzyme.

Applicants respectfully point out that the pectin of AKAHOSHI et al. is different from the claimed pectin. At Table 1, AKAHOSHI et al. disclose that the DE of the pectin is 70%. In contrast, the DE of the claimed pectin is from about 45 to 62%. All the pending claims require an

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enzymatically blocked-deesterified pectin having (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20. Nothing in AKAHOSHI et al. teaches or suggests the pectin of the claimed invention. Further, AKAHOSHI et al. do not teach or suggest an enzymatically blocked-deesterified pectin that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

Claims 1 and 13

Page 3 of the Office Action states that:

> Claims 1 and 13 differ from the references in whether the pectin shows pseudoplasticity and no phase separation in an aqueous solution containing a polyvalent cation. However, as the composition has been shown, it is seen that such characteristics are inherently found in the composition. Therefore, it would have been obvious to make a pectin which did not exhibit phase separation and [displayed] pseudoplasticity as shown by the above combination of references.

Applicants note that this rejection is made under 35 U.S.C. § 103 based on obviousness. The rejection, however, does not indicate how these cited documents are being modified. In this regard, the rejection appears to indicate that the features of the present invention are inherent. The Examiner is reminded that in order for inherency to be present, it must be a necessary result, and not merely a possible result. Ex parte Keith and Trunquest, 154 U.S.P.Q. 320 (B.O.A. 1966). Further the burden is on the Examiner to establish that the reference inherently includes what are recited in Applicants' claims. In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent

characteristic necessarily flows from the teachings of the prior art. Ex parte Levy, 17 U.S.P.Q.2D 1461 (B.P.A.I. 1990).

Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

Claims 2-8, 14-47, 61-82, and 84-121

With respect to the rejection of claims 2-8, 14-47, 61-82, and 84-121, Applicants respectfully point out that all of these claims are directed to an enzymatically blocked-deesterified pectin that displays pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation. This enzymatically blocked-deesterified pectin has (1) a degree of esterification (DE) from about 45 to 62%, and (2) a calcium sensitivity (CS) greater than about 200 cP or a calcium fraction greater than 20.

As discussed above, none of the above-cited references provides any motivation for a skilled artisan to make the claimed invention. First, as discussed above, each of the cited prior art references teaches a pectin that is substantially different from the claimed invention. No where in any of these references is there any teaching or suggestion of a pectin that displays pseudoplasticity and substantially no phase separation in an aqueous solution comprising at least one polyvalent cation. There is no teaching or suggestion in any of the cited references that would provide any motivation for a skilled artisan to modify the pectin of these references so that it would have (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and thus would display pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

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For example, there would have been no motivation for a skilled artisan to modify the teaching of AKAHOSHI et al. to make the claimed invention of claims 2-8. First, as discussed above, AKAHOSHI et al. teach a pectin that is substantially different from the claimed invention. No where in the AKAHOSHI et al. is there any teaching or suggestion of a pectin that displays pseudoplasticity and substantially no phase separation in an aqueous solution comprising at least one polyvalent cation. A mere teaching of using 5 grams of calcium gluconate to make a yoghurt would not motivate a skilled artisan to modify the pectin of AKAHOSHI et al. so that it would have (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and thus would display pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

In addition, Applicants note that at column 9, lines 45-54, AKAHOSHI et al. do teach that after two weeks of storage their yoghurt products do not show separation and precipitation. However, this teaching does not provide any motivation as to why or how a skilled artisan would use this teaching to modify the pectin of AKAHOSHI et al. so that it would have (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and thus would display pseudoplasticity and substantially no phase separation when present in an aqueous solution comprising at least one polyvalent cation.

Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

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Second Prior Art Rejection

The Office Action also stated that "Claims 9-12, 83 are rejected under 35 U.S.C. § 103(a) for being unpatentable over the above combined references as applied to claims 1-8, 13-82, 84-121 above, and further in view of GRASSIN et al. '494."

The Office Action asserts that claims 9-11 and 83 require particular degrees of esterification, and claims 11 and 12 further require a certain level of calcium sensitivity. The Office Action also asserts that GRASSIN et al. disclose:

> [A] composition containing a high methoxylated pectin in fruits which have been treated with a pectin esterase to make a low-methoxylated pectin which is calcium dependent.

Therefore, the Examiner concludes that it would have been obvious for a skilled artisan to make a composition containing a pectin with a low degree of esterification using the process of GRASSIN et al. because AKAHOSHI et al. teach the use of a high methyl pectin to "tie up the casein and lessen the chance of precipitation" and make the invention of claims 11 and 12. Further, the Examiner asserts that since the GRASSIN et al. reference discloses that there is no problem with casein precipitation, there would one of ordinary skill in the art would not experience any problem with casein precipitation when modifying the process of GRASSIN et al. with the process of AKAHOSHI et al.

In addition, the Office Action alleges that since GLAHN teaches the use of up to 100% calcium sensitive pectins, it would have been obvious for a skilled artisan to modify the calcium sensitivity and degree of esterification of the pectin of GLAHN to make the invention of claims 11 and 12.

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GRASSIN et al. (U.S. Patent No. 5,639,494)

Applicants respectfully point out that the GRASSIN et al. reference is directed to pectinesterase in the treatment of fruit and vegetables. Specifically, the GRASSIN et al. reference is directed to methods for producing fruit and vegetable jams and jellies, compotes, sauces, and soups. There is nothing in the GRASSIN et al. that teaches or suggests a pectin that displays pseudoplasticity and substantially no phase separation in an **aqueous solution** comprising at least one polyvalent cation as claimed in the present invention.

Although the GRASSIN et al. reference teaches the use of a pectin esterase to convert high-methoxylated pectin to low-methoxylated pectin that would form a gel, this reference neither teaches nor suggests an enzymatically blocked-deesterified pectin having (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20 that would display pseudoplasticity and substantially no phase separation in aqueous solution comprising at least one polyvalent cation of the present invention.

As for the AKAHOSHI et al. reference and the GLAHN reference, these references do not teach or suggest the pectin of the present invention. In addition, one of ordinary skill in the art would not be motivated to combine either one of these references with the GRASSIN et al. reference to make the claimed invention. One of ordinary skill in the art would not be motivated to modify the teaching of making fruit and vegetable jams and jellies, compotes, sauces, and soups of GRASSIN et al. with the teaching of making calcium enriched fermented milk of AKAHOSHI et al. to make the claimed invention. Similarly, one of ordinary skill in the art would not be motivated to modify the teaching of making fruit and vegetable jams and jellies, compotes, sauces, and soups of

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GRASSIN et al. with the teaching of obtaining at least one of a calcium sensitive fraction and a non-calcium sensitive pectin to make the present invention.

Applicants respectfully point out that Office Action does not explain why it would have been obvious for a skilled artisan to modify the teaching of the prior art to make the claimed invention. The Office Action also does not clearly identify which cited reference is a primary or secondary reference. In addition, although this rejection is made under 35 U.S.C. § 103 based on obviousness, the rejection, however, does not indicate how this document is being modified. In this regard, the rejection appears to indicate that the features of the present invention are inherent. Such rejections, however, are made under 35 U.S.C. § 102 alleging that the features are inherent, which inherency is not present in the presently cited documents as discussed in detail below.

In view of the above, Applicants respectfully submit that since the prior art rejections do not indicate how the disclosures of the cited documents are being modified and since these rejections are not made under 35 U.S.C. § 102(b), the present rejection should be withdrawn for being inappropriate. Furthermore, since the rejections are not clearly set forth, Applicants respectfully submit that if the Examiner relies upon the cited documents and inherency in a future Office Action, such an Office Action should be made non-final.

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CONCLUSION

For the reasons advanced above, Applicants respectfully submit that all pending claims patentably define Applicants' invention. Allowance of the application with an early mailing date of the Notices of Allowance and Allowability is therefore respectfully requested.

Should the Examiner have any further comments or questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Should the Examiner have any questions, please contact the undersigned at the telephone number provided below.

Respectfully submitted,

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APPENDIX

(Marked-up copy of paragraphs from specification and marked-up of claims)

IN THE SPECIFICATION

Please replace the paragraph on page 9, between lines 9 to 14, with the following paragraph:

--The enzymatically blocked-deesterified pectin of the present invention is also non-thixotropic in aqueous solutions when reacted with a polyvalent cation. That is, the enzymatically blocked-deesterified pectin of the present invention aids the aqueous solutions to rebuild viscosity or recover very quickly when shear is removed. The rebuild in viscosity after shear is applied is [essential] essentially identical to the value for the viscosity before shear is introduced.--

Please replace the paragraph on page 18, line 26 to page 19, line 9, with the following paragraph:

--The procedure for the calculating the calcium sensitivity is as follows: (1) weigh out the pectin with adjusted sugar percentage to 3 decimals; (2) disperse the pectin into 240 ml boiling ion-exchanged water in a high shear mixer; (3) pour the solution into a tared beaker with magnet; (4) pour additional 100 ml ion exchanged water into the mixer and add to the solution; (5) cool the pectin solution to about 25°C; (6) adjust the pectin solution to a pH of 1.5 with 1 M [Hcl] HCl; (7) weigh the solution to 400 g; (8) weigh out 145 g ± 1 g pectin solution in a viscosity glass; (9) put a TRIKA magnet in the glass; (10) add 5 ml 250 mM Ca++ solution to the pectin solution while stirring with the plate magnetic stirrer at step [(1)] (9). Stir for 2 min; (11) add 25 ml 1 M acetate buffer with dispenser to the glass while stirring with a magnetic stirrer (JK IKA-Combimag REO) (the pH is about 4.2); (12) stir for an additional 2 minutes as described in step [(1)] (10); (13) remove the magnet and let the solution rest at 25°C until next day; and (14) measure calcium sensitivity as viscosity in cP with Brookfield LVT viscosimeter at 60 rpm/25°C (use the thermostatically controlled water bath).--

Please replace the paragraph on page 20, between lines 18 to 23, with the following paragraph:

--An aqueous solution of the pectin is prepared in distilled water and its pH adjusted to 1.5 with 1 M [HCI] HCl. The concentration used should be around 0.60%. 145g portions of this pectin solution are measured into viscosity glasses. 5 ml of a solution containing 250 mM calcium chloride is added to the 145 g pectin solution to give a final concentration of 8.3 mM calcium. With efficient stirring with a magnetic stirrer, 25 ml of an acetate buffer containing 1 M of acetate ions and a pH of 4.75, is added to the pectin solution to bring the pH to 4.2.--

IN THE CLAIMS

Please amend claims 1, 3, 9, 11, 12, 16, 24, 25, 27, 40, 45-48, 50, 56, 83, 86, 88, 90, 118, and 121 as follows:

1. (Amended) An enzymatically blocked-deesterified pectin displaying pseudoplasticity and substantially no phase separation in aqueous solution comprising at least one polyvalent cation,

wherein the enzymatically blocked-deesterified pectin has (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20; and

wherein the amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%.

3. (Amended) The enzymatically blocked-deesterified pectin of claim 2, wherein the polyvalent is selected from one of aluminum ions, iron ions, manganese ions, calcium ions, and [manganese] magnesium ions.

9. (Amended) The enzymatically blocked-deesterified pectin of claim 1 having a degree of esterification from about [45 to 65%] 50 to 62%.

11. (Amended) The enzymatically blocked-deesterified pectin of claim 9 having [a calcium sensitivity greater than about 200 cP or a calcium faction greater than 20, and] a Δ degree of esterification from about 5 to 25%.

12. (Amended) The enzymatically blocked-deesterified pectin of claim 11 having [a calcium sensitivity greater than about 200 cP or a calcium faction greater than 20, and] a Δ degree of esterification from about 8 to 15%.

16. (Amended) The enzymatically blocked-deesterified pectin of claim 13 having degree of esterification from about 45 to [65%] 62% when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%.

24. (Amended) The enzymatically blocked-deesterified pectin of claim 23 having degree of esterification from about 45 to [65%] 62% when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%.

25. (Amended) A process for producing an enzymatically blocked-deesterified pectin which comprises treating at least one isolated high methoxyl pectin with at least one deesterifying enzyme, wherein the enzymatically blocked-deesterified pectin displays pseudoplasticity and substantially no phase separation in aqueous solution comprising at least one polyvalent cation,

wherein the enzymatically blocked-deesterified pectin has (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20; and

wherein the amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%.

27. (Amended) The process for producing an enzymatically blocked-deesterified pectin of claim 26, wherein the polyvalent is selected from one of aluminum ions, iron ions, manganese ions, calcium ions, and [manganese] magnesium ions.

40. (Amended) The process for producing an enzymatically blocked-deesterified pectin of claim 25, wherein if the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72 %, the degree of esterification of the enzymatically blocked-deesterified pectin is from about 45 to [65%] 62%.

45. (Amended) The process for producing an enzymatically blocked-deesterified pectin of claim 44, wherein the enzymatically blocked-deesterified pectin has [a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and] a Δ degree of esterification from about 5 to 25 %.

46. (Amended) The process for producing an enzymatically blocked-deesterified pectin of claim 45, wherein the enzymatically blocked-deesterified pectin has [a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and] a Δ degree of esterification from about 8 to 15 %.

47. (Amended) The process for producing an enzymatically blocked-deesterified pectin of claim 46, wherein the enzymatically blocked-deesterified pectin has a degree of esterification from about [45 to 65%] 50 to 62%.

48. (Amended) A process for suspending insoluble components in an acidic liquid system which comprises adding enzymatically blocked-deesterified pectin that has been deesterified with enzyme to acidic liquid system, wherein the enzymatically blocked-deesterified pectin displays pseudoplasticity and substantially no phase separation in aqueous solution comprising at least one polyvalent cation,

wherein the enzymatically blocked-deesterified pectin has (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20; and

wherein the amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%.

50. (Amended) The process of claim 49, wherein the polyvalent is selected from one of aluminum ions, iron ions, manganese ions, calcium ions, and [manganese] magnesium ions.

56. (Amended) The process of claim 48, wherein the enzymatically blocked-deesterified pectin has [a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and] a Δ degree of esterification from about 5 to 25 %.

83. (Amended) The process of claim 48, wherein the enzymatically blocked-deesterified pectin has [a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20 cP, and] a Δ degree of esterification from about 5 to 25%.

86. (Amended) The process of claim 48, wherein the enzymatically blocked-deesterified pectin has a degree of esterification from about 50 to 62% [45 to 65% when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%].

87. (Amended) The process of claim 86, wherein the enzymatically blocked-deesterified pectin has a degree of esterification from about 55 to 59% [when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%].

88. (Amended) A stabilized acidic liquid system comprising (a) at least one enzymatically blocked-deesterified pectin that displays pseudoplasticity and substantially no phase separation in aqueous solution comprising at least one polyvalent cation; and (b) at least one acidic liquid solution,

wherein the enzymatically blocked-deesterified pectin has (1) a degree of esterification from about 45 to 62%, and (2) a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20; and

wherein the amount of the enzymatically blocked-deesterified pectin in the aqueous solution is from about 0.05% to about 0.6%.

90. (Amended) The stabilized acidic liquid system of claim 89, wherein the polyvalent is selected from one of aluminum ions, iron ions, manganese ions, calcium ions, and [manganese] magnesium ions.

118. (Amended) The stabilized acidic liquid system of claim 88, wherein the enzymatically blocked-deesterified pectin has [a calcium sensitivity greater than about 200 cP or a calcium fraction greater than 20, and] a Δ degree of esterification from about 5 to 25%.

121. (Amended) The stabilized acidic liquid system of claim 88, wherein the enzymatically blocked-deesterified pectin has a degree of esterification from about 50 to 62% [45 to 65% when the degree of esterification of the isolated high methoxyl pectin is from about 68 to 72%].